Economic restructuring: The effects on migration and
poverty rates in the U.S. during the 1990s

Matthew J. Moehr

University of Nebraska – Lincoln

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ABSTRACT

The popular media and academic sphere has been filled with claims about a “new” economy since the early 1990s. A common theme of the new economy is the change of production in terms of industrial sector and in terms of geographic location. The purpose of this study is to model the effects of economic restructuring during the 1990s on the migration and poverty rates of U.S. counties. According to neoclassical economic theories, wages and net migration should flow in opposite directions as employers and employees attempt to maximize their profits. I find this theory to be lacking in explanatory power, so I develop alternatives which allow reciprocal effects between migration and poverty, and simultaneously incorporate spatial spill-over effects near growing suburban counties. I conclude that many sectors typical of the new economy – for instance Finance, Insurance, and Real Estate – actually have no beneficial effect on migration or poverty.

INTRODUCTION

In 1990 the phrase “new economy” was almost non-existent, but by 2000, the combined output of four major U.S. newspapers was averaging more than an article per day under the headline of new economy. I suspect a thorough reading of every article about the new economy might still leave the concept fuzzy around the edges, but the common theme is a change away from the manufacture of tangible goods to the production of non-tangible services and information, or in other words, economic restructuring. An exact definition is neither possible nor necessary for this paper, but Figure 1 quickly illustrates the point that the new economy sprung onto the scene in the 1990s and quickly accelerated after 1997. For an economy like the United States during the 1990s, the new economy was often reported to have vast and deep consequences for workers, corporations, and nation-states. However, the exact impact of the new economy has never been explored, or even demonstrated, empirically across the entire United States.

I am somewhat skeptical as to the existence of a new economy, but I am especially skeptical that it benefits all people and places. The purpose of this study is to model the effects of economic restructuring on the migration and poverty rates of U.S. counties. There are sound theoretical reasons to suspect that migration and poverty are strongly influenced by economic restructuring, but are still independent measures of the social and economic situation within a particular county. Or to put it another way, migration and poverty are economically influenced, but not economically determined. I will first develop a model to summarize the effects of economic restructuring on migration and poverty, and then using the tools of spatial econometrics, begin to analyze the geographical distribution of these changes.

One of my main contributions to the ongoing debate about the new economy will be to simultaneously address migration and poverty as outcomes of economic restructuring. Research focusing on the economy-migration link has been bound up with “urbanization” theories, which posit an increased role for corporate control located in international mega-cities. On the other hand, research on the economy-poverty link usually takes a decidedly critical stance towards corporations, government policies, and globalization. The research on the migration-poverty link is less developed at this juncture, but likewise tends to critique globalization as the driving mechanism behind increased inequality and segregation. I think my approach has a unique vantage point to address the nexus of economic restructuring, migration, and poverty. Below are three sections comprising a review of the current literature on the links I mentioned above, and then I propose a set of empirical models to test the hypotheses suggested in the literature.

LITERATURE

Economic Change and Migration

The concept of economic change has two dimensions: 1) the growth or decline of economic activity and 2) the change in the types of economic activity. I will review literature which operationalizes the first dimension as changes in income, jobs, profits, or productivity and the second dimension as changes in specific industrial sectors. Economic change measured along these two dimensions is often related to changes in population. In the same way that capital flows from low-profit businesses into higher-profit arenas, neoclassical economic theory holds that the migration of labor will tend to maximize earnings. Some evidence has been marshaled to demonstrate that people tend to move to places with higher wages. Neoclassical theory's predictions do not hold across all times and places. Therefore, research has developed explanations such as endogenous growth theory, certain aspects of urbanization theory, and spatial analyses to create a more complicated (and hopefully more accurate) set of predictions for migration patterns.

Neoclassical Economic Growth Theory. As originally formulated, the neoclassical theory or economic growth applies mainly to the concepts of capital and productivity. The theory predicts that regions will tend to converge in productivity. This should occur as capital flows from more productive markets to less productive markets because of diminishing returns to investment in the more competitive markets. Since productivity is often measured by wages or real wages, it might be more helpful to rephrase the central tenant: businesses will tend to invest capital in areas with lower wages, and thus these areas will grow faster than places with high wages with the

ultimate result of wage (i.e. productivity) convergence (Borts and Stein 1964). Within this theory, interregional migration is not a necessary mechanism for convergence. However, migration can be included as a type of capital flow, human capital, and contribute to a faster rate of convergence (McCombie 1988; Feser & Sweeney 2003, 39). Migration and business investments should flow in opposite directions leading to a quick convergence of wages across all regions.

There has been mixed to no support for this theoretical conclusion at the national (Barro 1991) or state level (Carlino & Mills 1996). At a smaller level of geography, Hammond (2004, 560) notes that non-metropolitan commuting zones¹ bordering on metropolitan zones tended to experience income convergences between 1969 and 1999. However, non-metropolitan zones not bordering on a metropolitan zone did not experience income convergence during the period. The lack of direct empirical support for the neoclassical theory of economic growth has encouraged researchers to utilize more complicated theoretical frameworks.

Endogenous Growth Theory. While the neoclassical model predicts growth based on the flow of capital, the endogenous growth model uses internally produced shocks (i.e. innovation) to explain growth. Some of the favorite themes of this growing body of literature include knowledge spillovers, technological spillovers, agglomeration benefits, and progressive government policy making. In much of the research, migration seems to be left out as an endogenous growth factor. Instead migration patterns such as the “brain drain” are often cited as exogenous determinants of an area’s ability to generate growth

¹ The Economic Research Service aggregated counties into 722 commuting zones intended to capture local labor markets. See Hammond (2004, 548).

(Hanson 2000, 483). Linking migration and economic growth within the endogenous growth model often occurs within the realm of policy analysis.

Feser and Sweeney (2003) undertook an analysis of federal funding criteria based on commuting zone data from 1969-1999. The authors were interested in explicitly testing unemployment, low income, and out migration as criteria for development program eligibility. The conclusions supported the idea that out migration and economic distress occur to the same extent in most areas. However, Feser and Sweeney suggest that the empirical evidence points to migration as an adjustment mechanism in the labor market (2003, 64). This conclusion would be more consistent with the neoclassical theory of economic growth. However, other research by Azariadis and Stachurski (2005) derives the existence of poverty traps based on endogenous variables. This might be labeled “endogenous decline theory”. The authors find that self-reinforcing inefficiencies within local institutions and individual decisions can create poverty traps while escaping these inefficiencies through social coordination allows for growth miracles (Azariadis & Stachurski 2005, 302). Taken together, this evidence argues for endogenous causes of poverty exacerbated by the out-migration of human capital.

Urbanization. Theoretically, endogenous growth theory could apply to any place – urban or rural. In practice, though, most research invokes the theory in order to explain urbanization and the geographic concentration of economic activity. In industrialized nations the size distribution of cities has remained very stable over time, industries tend to concentrate in a limited number of urban areas, and most urban areas tend to specialize in specific industries (Henderson 2005, 1555-58). This type of population and economic agglomeration is generally described as a function of the benefit of scale economies, the

transportation costs of industrial inputs and outputs, and the costs of congested urban areas (Hanson 2000).

The work of Saskia Sassen (2006) and others posits a unique and growing role for large urban areas in a globalized new economy. This type of literature usually cites the ability of cities to link together advanced technology with highly skilled workers (Hornstein, Krusell & Giovanni 2005, 1289). The use of technology and the interactions of a skilled workforce are then said to lead to knowledge spillovers. However, recent work by Cristiano Antonelli criticizes the notion of spillovers, “as if external technological knowledge could be acquired freely in the ‘atmosphere’ without dedicated efforts (2000, 402).” Along with the knowledge spillovers, the communication networks present in urban areas should be considered endogenous features contributing to faster economic growth in urban areas. I would suggest that urbanization can, for the present purposes at least, be understood as a special sub-theory within the endogenous growth model. This sub-theory allows for a better integration of the empirical trends in migration and economic growth in the U.S. during the 1990s.

Spatial Convergence. Up until this point all discussion of economic growth and migration has been based on a set of a-spatial assumptions. Each theory assumes that geographic units – nations, regions, cities, etc. – are independent observations. For example, whatever differences neoclassical and endogenous growth theories may have, they would both predict that the relationship between growth in Oklahoma and California would be the same as the relationship between Oklahoma and Texas. The mere fact that Oklahoma and California are separated by hundreds of miles while Oklahoma and Texas share an extensive border is utterly unimportant in both theories.

Rey and Montouri (1999) develop a spatial econometric specification of the most common models used to test income convergence. Based on their initial findings that per capita income for U.S. states was spatially clustered during the period 1929-1999, they developed a spatial error model that provided “an avenue for random shocks to individual states to not only move that state away from its steady state equilibrium, but to propagate throughout the system of states, thereby complicating the transitional dynamics of the overall convergence process (Rey & Montouri 1999, 154).” In other words, it *is* actually important that Oklahoma and Texas share a border.

Although there has not been any additional research using the models developed by Rey and Montouri, it is a useful empirical validation of the common sense notion that regions would not only tend to converge to a national rate of economic growth, but that regions would also converge to economic growth rates in their neighborhoods. The casual mechanism behind regional convergence was suggested by Antonelli (2000): regions are a source of superfixed production factors and opportunities for technological communications. The most common example of superfixed production factors are Rust Belt industrial cities like Pittsburgh or Cleveland, and conversely places such as Silicon Valley are often cited as unique business cultures open to technological communications. I will return to these examples in the Results section to illustrate the importance of real-world geography and regional clustering noted by Rey and Montouri.

Economic Change and Poverty

Certainly I would not want to argue that economic change is only affecting individuals at the lower end of the income distribution, but the new economy has often been cited as especially grating on people at or near the poverty line. As the labor market

changes in response to global market pressures, people with fewer skills, less education, less useful networks, and lower income will be further marginalized. Some research suggests the new economy is a bifurcating force which creates a larger pool of “winners” but also a larger pool of “losers”. The literature on this topic sometimes invokes dual labor market theory, but often uses an ad hoc approach to explaining the effects of changing industrial structures.

Dual Labor Markets. Advanced industrial nations always create a dual labor market according to this theory. The dual labor market arises because historical occupational hierarchies and demographic transitions create subsequent constraints on employers to motivate the native labor force to fill less desirable jobs. Therefore, international immigrants are passively and actively recruited by employers to fill jobs on the low end of the bifurcated labor market (Massey, Arango, Hugo, Kouaouci, Pellegrino & Taylor 1993, 440-44). In the U.S. during the 1990s the dual labor market has mapped onto the financial and technological sectors at the high end and the service and retail sectors at the low end.

Comparing the job expansions of the 1960s and 1990s Wright and Dwyer conclude the recently bifurcated labor market may “signal the emergence of a new cultural reality of social inequality in which an increasing proportion of the people at the bottom are engaged in providing personal services to the people at the top (2003, 323).” This conclusion was based on the evidence that the 1990s saw most of the job growth in the highest and lowest quintiles of job earnings, as compared to the 1960s that added more jobs in each successively higher quintile of job earnings. In addition the researchers noted that the job expansion in the lowest quintile during the 1990s was

directly tied to the increase in Hispanic immigration (Wright and Dwyer 2003, 309). This evidence strongly supports dual labor market theory.

Restructuring and Inequality. Research has found that the effect of technological change has been asymmetric across industrial sectors (Hornstein, Krusell & Giovanni 2005, 1289). Also, within sectors there has been a growing premium for skilled labor. This premium for skilled labor has incentivized many individuals to seek more advanced education and skill training. Theoretically, equilibrium between the supply and demand for skilled labor should be reached, and then the wage premium for skilled labor should decrease. However, recent evidence suggests that the skill premium is tied to the rate of technological innovation, thus breaking the link between supply and demand for skilled labor (Hornstein, Krusell & Giovanni 2005).

The robust job expansion in the 1960s can be attributed to durable manufacturing growth, but the 1990s expansion was based on business services and high technology which created the perfect environment for a rapidly growing skill premium. The job growth in the 1990s was in the highest of five earning quintiles whereas the 1960s expansion occurred in the middle three quintiles. The 1970s and 1980s are often cited as the era of significant manufacturing decline in the U.S.; however, it was not until the 1990s that the drastic bifurcation in the labor market arose. This may be a result of compensatory growth in middle-income service sector jobs in the 1980s (Wright and Dwyer 2003, 313). By the 1990s almost all of the jobs added in the service sector were in the lowest of five earning quintiles, thus finalizing the bifurcated labor market along the lines of earnings and industrial sectors. As long as technological innovation

continues to support a skill premium within the labor market, there is good reason to suspect that changing sectors within the economy will continue to increase inequality.

Migration and Poverty

Setting aside for a moment the consideration of macro-economic changes, some research suggests a complicated reciprocal relationship between migration and poverty. In many ways this relationship is more difficult to model because it reflects individuals, whereas the economic changes described above are often measured in terms of capital flows, physical business establishments, or labor markets. A person's perceptions of their current livelihood, potential wages in another place, and costs of migration all influence the decision to move. Because these are human perceptions and not objective measures, the relationship between migration and poverty as predicted by neoclassical economic theory will often be tenuous. This is even before taking into account other complications between migration and poverty such as emotional connections to a home, social networks of friends and family, or differential housing costs. I have included the link between migration and poverty as a main part of the current study, albeit an imprecise part, because it seems to be absolutely crucial to a broader understanding of socio-economic change.

Migration as response to Poverty. This body of literature resembles neoclassical economic theory in that migration is a way for individuals to maximize their earnings. However, there is a growing consensus that low wages or unemployment may not be the main motivation behind migration for impoverished people. Janet Fitchen (1995) conducted a case study of a rural community in New York State that had recently experienced a large in-migration of poor people. She found that the primary motivation

cited for the move to the rural area was available and affordable housing. “Employment opportunities were neither a push factor in people’s departure from their previous location nor a pull factor attracting them to Riverside (Fitchen 1995, 190).” Fitchen suggested that the majority of people moving to Riverside, NY were faced with numerous barriers to employment, so their disregard for employment during migration decisions is not that surprising (1995, 197). This conclusion suggests that migration decisions for poor individuals may in fact be motivated by social programs instead of maximizing earnings.

A lot of research has attempted to test the effect of welfare policy on migration rates of people at or near the poverty line. A recent study by De Jong, Roempke Graefe, and St. Pierre (2005), finds evidence that decisions to leave certain states can be directly tied to the stringency of that particular state’s welfare reform policies. However, more lenient state policies did not attract more poor migrants during the period from 1996 to 1999.

Poverty as outcome of Migration. The small rural community cited in the above article by Fitchen saw an increase in the poverty rate of the community as a result of migration. Presumably the sending communities in this article, then, saw a decrease in the poverty rate as a result of migration. In this case, one of the primary sending communities was New York City. Considering the relatively small number of people covered in this study, it would be hard to believe that New York City actually experienced a noticeable decline in the poverty rate. Every migration adjusts the poverty rate of both the sending and receiving county. Research from an earlier period suggests that high poverty counties experience high in-migration rates of poor people, but also

high out-migration rates of poor people such that equilibrium in the poverty rate would be observed net of any endogenous changes in the economy (Nord, Luloff & Jensen 1995).

Summary

The literature review clearly demonstrates the plausibility of linking economic restructuring, migration, and poverty in a single empirical model. I have drawn on many disparate sources, but they tend to agree that there is an important change occurring in the relationship between social and economic systems. The rest of the paper develops an analysis of the nature and extent of this change. I will use empirical models to demonstrate that economic restructuring during the 1990s furthers the arguments of the authors cited above. It should be noted that my approach is distinctly “macro” in the data and models I use. My analysis could easily be described as the fly-over view, where the results are based on observations from an airplane window. While many of the articles cited above used micro approaches – individual interviews or micro-economic simulations for example – I will have nothing valid to say about individuals and their decisions. For instance, a reader should not misconstrue my analysis of poverty and migration to mean that I think that poverty *causes* an individual to move. I am simply observing the patterns of economic change, migration, and poverty in the U.S. during the 1990s. I will leave it to others to determine the underlying causes of these patterns.

METHODS

Data

This paper uses data from the 1990-2000 time period. Many historical events – increase in technology-based industries, 1996 welfare reform, balanced federal budgets, historically low unemployment rates – during the 1990s made this period an ideal place

to begin an investigation of the new economy². In addition, using the most current Decennial Census, as opposed to using intercensal estimates, provides the best measures of net migration rates and changes in poverty rates. Unless otherwise noted, this study makes use of data in 1990 and 2000 to measure the total changes in migration, poverty, and economic restructuring.

Net migration rates and poverty rates are based on Census data. Economic restructuring measures are drawn from the annual County Business Patterns (CBP) for all economic sectors except agriculture. For agricultural data, the 1992 and 2002 Census of Agriculture are used to calculate analogous measures of economic activity. Along with the agricultural sector, ten other sectors are drawn from the CBP at the two-digit classification level of the North American Industrial Classification System (NAICS): agricultural services, fishing, and forestry; mining; construction; manufacturing; transportation, communication and utilities; wholesale trade; retail trade; finance, insurance, and real estate; services; and unclassified. Table 1 shows the NAICS classifications at the two- and three-digit level. For each sector, a variable was constructed to capture the ratio between sectoral change within a county and the overall amount of economic volatility within the county. For a given sector, denoted by an s subscript:

$$X_s = \frac{2000 \text{ Wages}_s - 1990 \text{ Wages}_s}{\sqrt{\sum_s (2000 \text{ Wages}_s - 1990 \text{ Wages}_s)^2}}$$

² The current study is not explicitly a panel design, but it does incorporate changes over time in all measures. Alternatively, it would be possible to use data from the 1970 and 1980 censuses or to use intercensal estimates for the measures of migration and poverty, in order to create a true time-series data set. Detailing the “when” of the new economy seems like a valid research question, however, the present study will focus more on the “how” and “what” of the new economy while leaving open the possibility that the chosen time period is influencing the results of the analysis.

In essence, the denominator of this equation is the economic volatility within a county – both sectoral increase and decrease – and therefore, the value of X_s is bounded at +/-1.

Total economic growth was computed in a slightly different fashion. First the total wages in each county as reported in the CBP was added to the total agricultural sales as reported in the Agricultural Census. The change in this total value between 1990 and 2000 was then divided by the value in 1990; the result was a simple percentage increase or decrease. Growth is represented by the formula:

$$G = \frac{(2000 \text{ Total Wages} + 2000 \text{ Ag Sales}) - (1990 \text{ Total Wages} + 1990 \text{ Ag Sales})}{1990 \text{ Total Wages} + 1990 \text{ Ag Sales}}$$

This is an opportune point to note that within a county, the sum of wages across all sectors is not equal to the total wages. The CBP uses certain data suppression methods in order to protect the confidentiality of businesses, and thus, some wages are counted in the ‘total’ category which are not distributed into any specific sector. Other issues may also arise within the CBP data because of businesses with multiple locations or multiple types of industries in a single business³.

Measures of population density, natural amenities, family structure, and educational attainment are used as control variables. The number of persons per square mile, percent of female-headed households, percent of population over 18 with up to a high school diploma, and percent of population over 18 with at least an associate’s degree were calculated as static 1990 values from census data. The natural amenities variable was drawn from the Economic Research Service of the U.S. Department of Agriculture⁴.

³ For a detailed discussion of data suppression methodology, the reader is referred to the CBP website at the U.S. Census Bureau: <http://www.census.gov/epcd/cbp/view/cbpview.html>.

⁴ While not technically a static 1990 value, the climatic, topographical, and water cover measures within the scale are relatively permanent features of the county. For more information: <http://www.ers.usda.gov/Data/NaturalAmenities/>.

These control variables served a dual purpose in the structural models: they allowed for some understanding of the effect of economic change while controlling for measures of ‘static’ socio-economic conditions, but more importantly, they allowed for the estimation of reciprocal effects between net migration and poverty by serving as instrumental variables. The opportunities and problems arising from the use of the control variables are discussed in the following section.

Models

The empirical models are developed in three stages. First, I will present a set of simple OLS regression models that will serve as a straw-man baseline. Second, a set of structural models are estimated with two-stage least squares methods in order to allow for reciprocal effects between migration and poverty. Finally, I will attempt to correct for the spatial misspecification in the structural models with a preliminary spatial analysis. To begin with, a conceptual model is offered in Figure 1, which captures some of the main hypotheses of the current study:

- 1) The measures of economic growth will be positively associated with net migration rates and negatively associated with changes in poverty rates.
- 2) If there is indeed something empirically verifiable behind the new economy, there will be a significant effect of changes in economic structure on migration and poverty even while controlling for overall economic change.
- 3) There is a reciprocal relationship between migration and poverty.

All three phases of the analysis rely on these basic hypotheses. The spatial model is essentially my way of cobbling together two distinct analysis techniques in hopes of

benefiting from the strengths of each approach. Even though there are many examples of structural equation models in the econometric literature, very few of the studies operationalize the geographic and spatial nature of economic production and consumption. Therefore, I have attempted a first step towards integrating structural modeling with spatial analysis in hopes of understanding the socio-economic system within a geographic context.

RESULTS

OLS Regression

As an initial model for the socio-economic system, I estimated two OLS regression equations for net migration rates and change in poverty rates. From the onset I admit to the reader that this modeling approach violates basic OLS assumptions because net migration and poverty are in both equations (cf. Wooldridge 2003, 530 on simultaneity bias). If this greatly offends the statistical sensibilities of the reader, this short portion of the Results section can be skipped with no ill effects.

Table 2 summarizes the regression coefficients and model statistics for Model 1. The net migration equation does not include many surprising results. The change in poverty rate is negatively associated with migration, overall economic growth is positively associated with migration, and most economic sectors contribute unique effects to the prediction of net migration rates. One potentially interesting finding is that the much touted FIRE (finance, insurance, and real estate) sector did not have a significant effect on the net migration rates in this model. This is a finding that will be replicated in the other models.

The equation for change in poverty rates does contain a few counterintuitive results. Mainly, the control variables – female headed households, less than high school education, and at least an Associate’s degree – all have the “wrong” sign. According to this regression, having more families with female heads and a greater proportion of the population with only a high school education was associated with a decrease in the poverty rate. Conversely, a larger percentage of the population with a post-secondary degree was actually associated with increases in the poverty rate. These findings directly contradict previous research, and to a large degree common sense, but are nonetheless born out in all the models to follow. In part this result arises because I am using a measure of the change in poverty rates from 1990 to 2000. Most counties saw a decline in the poverty rate during the 1990s, and the counties with the higher poverty rates in 1990 had the furthest to fall. These counties also had higher rates of female headed households and people with lower education levels, thus leading to the situation where the “wrong” sign variables are identifying counties with high initial poverty rates and larger reductions in the rate during the decade.

The other important feature of the equation for poverty rates is the relatively low significance levels for most of the industrial sectors. Construction, manufacturing, and retail trade have the most significant effects on lowering poverty rates while most other sectors do not have an effect. This probably reflects the qualifications needed for entry level positions in the different sectors, and thus the ability for people in poverty to get a job.

Setting aside the problem of biased estimates, the OLS model does explain between 20 and 30 percent of the variance in the dependent variables. However, the

unexplained variance in the models is highly clustered in space, as denoted by the significant Moran's I measures of spatial autocorrelation (also see the first panel of Figure 6 and 7). To address these problems – simultaneity bias and spatial misspecification – a great deal of further elaboration is needed for these models.

Two Stage Least Squares Model

In the OLS section I noted that the two OLS regressions were subject to simultaneity bias, so I needed to estimate a series of equations using two stage least squares (2SLS) methods. Table 2 contains the regression parameters and model statistics. In many ways the 2SLS estimation resembles the flawed OLS estimation, but more importantly the 2SLS also contains a valid specification for the feedback process between net migration and poverty. The 2SLS model is a type of simplified structural equation model which can be depicted as the path diagram in Figure 3. Note here that the control variables also serve as the instrumental variables for the estimation of reciprocal effects. A seasoned structural equation modeler will catch that I am making a very strong theoretical claim in this seemingly innocuous portion of the model: the five control variables only effect migration or poverty – not both. The control variables were specifically selected to serve this purpose.

Previous research (Friedman & Lichter 1998; Voss, Long, Hammer, & Friedman 2006) indicates that female headed households and education levels within a county affect the county's poverty rate, but presumably migration is actually affected by intervening forces such as the local labor market, housing stock, or cultural amenities. Likewise, population density and natural amenities probably affect migration first (cf. McGranahan 1999 for an analysis of amenity-driven migration), and then the migration

affects poverty either by attracting affluent/impoverished residents or by stimulating/dampening agglomeration benefits.

When the simultaneity bias is corrected the coefficients for net migration and poverty found in Table 2 change dramatically between the OLS model and the 2SLS model. However, the economic growth and restructuring variables are remarkably similar. For example, wages in the construction sector predicts the largest increase in net migration rates and the largest decrease in poverty rates in both the OLS and 2SLS models. In regards to overall model improvement, the reader can easily see that properly specified effects between net migration and poverty generate little additional traction ($R^2 = .270$ for net migration and $R^2 = .188$ for poverty rates). While the 2SLS is more mathematically correct, it still suffers from geographic misspecification. The significant Moran's I statistics suggests that the model residuals are clustered in space meaning that there are groups of counties where the model works and groups where it does not. The second panel of Figure 4 and 5 offer a visual confirmation of the significant residual clustering. A spatial error model allows for the effect of clustered residuals to be explicitly included in the estimation, and thus removed from the unexplained variance net migration and poverty rates.

Spatial Error Model

There is no generally accepted method for dealing with spatial misspecification in structural equation models. One suggestion by Rey and Boarnet (2004) is to include spatially lagged dependent variables in the structural equations. For the present study this would mean calculating a spatially lagged variable for net migration rates and change in

poverty rates, and then include these lagged variables in some combination in the two equations. One possibility would be:

$$\begin{aligned} NetMigration &= \beta_{11}poverty + \rho_{11}\mathbf{W}poverty + \rho_{12}\mathbf{W}netmigration + \beta_{12}growth + \dots + u, \\ Poverty &= \beta_{21}netmigration + \rho_{21}\mathbf{W}netmigration + \rho_{22}\mathbf{W}poverty + \beta_{22}growth + \dots + v \end{aligned}$$

Where $\mathbf{W}$ represents a spatial weighting matrix which averages the value of poverty or net migration in the surrounding neighborhood. This particular example includes both the common type of spatial lag and what the authors referred to as “cross-lag”. For instance the lagged poverty term in the net migration equation is a cross-lag because it is the lagged variable from the other equation. Rey and Boarnet (2004, 106-7), specify 35 possible combinations of reciprocal effects, spatial lags, and cross-lags; however, they all share the same theoretical underpinning in that they assume the value of the endogenous variable in near-by locations has an effect on the dependent variable. For my purposes these models would suggest that the poverty rates in the surrounding counties would have an effect on the net migration rates of the focal county – and vice versa. While this may indeed be the case, I am not interested in testing the spillover effects of migration and poverty in this study. Instead, the concentration is on understanding economic restructuring and especially the geography of changes in the socio-economic system. Therefore, I need a model to take into account the spatial arrangement of the exogenous variables such as economic growth and restructuring.

The spatial filtering technique developed by Arthur Getis is a flexible approach that could be implemented within structural equation models (cf. Getis 1995 for a concise description of spatial filtering). Simply put, this approach is based on the idea that any variable can be thought of as two separate parts. The first part is spatially independent and is the portion of the variable that would exist if the spatial unit existed in a vacuum.

The second part is spatially dependent and can be thought of as containing all of the spillover effects and the spatial heterogeneity within the variable as it exists in some real world geography. The task of spatial filtering is simple: partition the two parts of a variable and analyze the effect of the two new variables. Originally, Getis developed this procedure to be used within an OLS framework, but it could also be implemented within structural equation models. In the current database, there would end up being 22 variables for the economic sectors instead of the original 11 and each of the other variables would likewise be filtered into spatial and a-spatial halves. Theoretically this offers an elegant solution to the problem of spatial misspecification within the structural equations. Practically, though, the spatial filtering technique proved to be too computationally burdensome.

In order to construct a spatially filtered variable, it is first necessary to find the critical distance where spatial dependence is maximized for each individual variable. The only means to find the critical distance is to calculate a measure of spatial dependence (Getis suggests the G_i statistic) at multiple distance intervals using a series of spatial weight matrices. To spare the reader the gruesome details, I will briefly say that creating possibly hundreds of weight matrices for all 3129 counties in the U.S. and then calculating spatial dependence measures for the 17 exogenous variables was beyond my (computer's) means. The final solution for dealing with the spatial misspecification of the structural model was to estimate a spatial error model for each of the two equations in the 2SLS model.

I created the spatial error model using the GeoDa software package (Anselin, Syabri, & Youngihn 2006). First I had to manually construct the net migration and

poverty instrumental variables because there is no 2SLS estimation functionality within the GeoDa package⁵. Second it was necessary to specify a neighborhood weights matrix in order to capture the spatial effects in the data. Based on Wheeler (2001) I chose to consider all counties within a 40 mile (64 km) radius to be neighbors of the central county. Beyond the distance of 40 miles variables such as population change, employment, income, and earnings no longer exhibit spatial autocorrelation (Wheeler 2001, 447). In order to implement this concept of a spatial neighborhood, I needed to convert all U.S. counties from polygon shapes to individual points. The process of creating county points is not trivial. In essence this step attributes all economic change, migration, and poverty to a single location within a county; because it seems logical that the greatest amount of socio-economic activity is probably centered in the highest concentration of population, I chose to use population centroids⁶ as approximations of the location of the county variables. With these new point locations and the 40 mile radius, GeoDa is able to create a neighborhood weights matrix.

A spatial error model is theoretically distinct from the two other spatial models I discussed above. Instead of estimating the effects of variable spillover or clustering, a spatial error model attempts to correct for autocorrelated disturbances. In the present application this means that the spatial error model estimates the degree to which unobserved variation (a.k.a. omitted variable bias) is clustered together in space. By

⁵ With regards to 2SLS estimation it has been noted, "...in most cases, you should avoid doing the second stage manually, as the standard errors and test statistics obtained in this way are *not* valid (Wooldridge 2003, 500)." Resolving this technical problem is a challenge for further integrating structural equation models and spatial analysis. However, for the present analysis I am willing to tolerate a certain amount of imprecision in the standard errors of the coefficients. As a test, I computed a non-spatial OLS regression within GeoDa using the manually constructed instrumental variables. Although there were changes in the standard errors, all coefficients had the same sign and level of significance in the manual OLS estimation within GeoDa and the 2SLS estimation within SPSS.

⁶ I duplicated the U.S. Census Bureau's method for calculating population centroids. A useful methodological brief and data can be found at: <http://www.census.gov/geo/www/cenpop/cntpop2k.html>.

including a second error term, the model can be corrected for the unobserved disturbances beyond the normal i.i.d. errors. In Figure 3 and Table 2 I depicted the additional error term as λ (lambda). Often the unobserved disturbances are referred to as spatial heterogeneity because the model is taking into account the stochastic reality of the geographic distribution of exogenous variables. To concretize for the current variables: any researcher should expect that the histories, politics, and cultures of different places would give rise to various socio-economic systems across the country. Economic change, migration, and poverty are certainly interrelated during the 1990s. The variables in my models are also affected by many other factors of the region, and therefore, any model analyzing these three variables will undoubtedly contain spatially autocorrelated disturbances, i.e. the model will contain spatial heterogeneity. Estimating a spatial error model should help to correct for this problem.

Table 2 summarizes the regression coefficients and model fit statistics of the spatial error model. The spatial error model is almost identical to the non-spatial 2SLS model. All variables have the same level of significance and all of the significant variables have the same sign. One notable exception is the effect of population density on net migration rates. In the OLS and 2SLS models, population density is always positively related with net migration – more densely populated places have higher net migration. However, in the spatial error model it is negatively related with net migration ($B = -.024$, $SE = .004$), which means that less populated counties had higher net migration rates if spatial heterogeneity is appropriately controlled. This suggests that rural counties saw a significantly higher migration rate than urban places during the 1990s when the long run trend of urbanization (and suburbanization) is accounted for.

Since the spatial error model did not significantly change any of the model parameters, it might be tempting to dismiss it as an unnecessary complication. The overall improved model fit, however, argues in favor of including spatial heterogeneity in an analysis of the socio-economic system ($R^2 = .428$ for net migration and $R^2 = .335$ for poverty rates). Most importantly the spatial error model removes the high degree of spatial autocorrelation among the residuals. The Moran's I values within Table 2 demonstrate that in the non-spatial models the residuals tend to cluster together. On the other hand, residuals of the spatial error model exhibit negative spatial autocorrelation which means that similar residual values tend to be dispersed. Unfortunately, the negative Moran's I values are statistically significant ($p < .01$ for both net migration and poverty rates). The goal of spatial error models is to create spatially random residuals, but in this case the model estimation seems to have over corrected for the spatial clustering. The degree of spatial patterning, however, is significantly less dramatic as can be seen in Figure 4 for net migration rates and Figure 5 for change in poverty rates.

The spatial error model is the preferred model. Empirically, it creates the best model fit and least amount of spatial autocorrelation among residuals, and, theoretically, it incorporates both the reciprocal effects of migration and poverty and the effect of geographically distributed economic change.

To crystallize my arguments about economic restructuring and geography, it may be more useful to apply the statistical model to a few examples and illustrate how specific places experienced the new economy. I choose Cleveland, Ohio and Pittsburgh, Pennsylvania to represent places that were historically tied to old economy sectors such as manufacturing. As can be seen in Table 3, both of the central city counties for each

place actually experienced less out-migration and a greater reduction in the poverty rate than was predicted from the spatial error model. On the other hand, Santa Clara, California could be said to epitomize the technology and service sector driven new economy. Table 3 shows that the heart of Silicon Valley experienced a slight increase in the poverty rate, which was in direct contrast to the moderate decrease predicted in the model. These brief examples are certainly not conclusive and they do not come with any sort of statistical test of significance; however, they do shed light on the effects of economic restructuring in different locations.

DISCUSSION

The purpose of this paper is to assess the effects of economic restructuring on net migration and poverty in the U.S. during the 1990s. The use of a spatial model shows that much of the error in the original structural model may arise from the violation of the assumption that the economic change variables are geographically independent. Correcting for the spatial heterogeneity allowed for better prediction of net migration rates and changes in poverty rates; however, it was still not a perfect integration of structural and spatial methodologies. Future research should continue to develop this approach because this paper suggests that the socio-economic system can only be understood in a spatial context.

Additionally, the models I have proposed suffer from many of the limitations imposed by the types of social and economic data available. First, the use of net migration rates as an indicator of the social outcomes of economic restructuring may be too broad. Using data that measures out-migration and in-migration separately would be preferable. Two counties with the same net migration rates but with drastically different

migration flows, probably indicates two very different socio-economic systems. Second, counties are problematic units of geography because they are both too big and too small. I have tried to develop this paper with the understanding that local places made a difference during economic restructuring – places had different resources to draw upon, different chances for successful restructuring, and different levels of ‘attractiveness’ for people and capital. However, places do not necessarily equate with county boundaries. Chicago may be thought of as a single place, but it covers numerous counties across three states. On the other end of the continuum, San Bernardino County, CA includes some exurban areas of metropolitan Los Angeles and a good portion of the Mojave Desert. Using a better geographical unit – one that more accurately approximates the socio-economic system of real places – should help to reduce the disturbance terms in the model. Third, it is impossible to tell how much the model is affected by the data suppression required for CBP confidentiality standards. More importantly, this effect is disproportionately large in counties with fewer reporting businesses. Therefore, less populated counties are contributing less information to the restructuring factors when in fact they may have experienced more restructuring relative to counties with larger populations.

Even with these measurement limitations in mind, though, I think the findings of this paper are important. Structural modeling has usually not taken into account the spatial distribution of the variables under consideration, and this paper offers a useful example of the advantages found in explicitly considering the geography of the socio-economic system. Substantively, I find that the new economy is not beneficial for all people and places. In fact, gains in the financial sector were not significantly related to

increased prosperity, and of all the sectors typical of the new economy, retail trade demonstrated the most consistent link across models to positive net migration and decreased poverty. Increased wages in some of the old economy, such as mining and agriculture, actually showed increased poverty rates. However, the manufacturing and construction sectors showed the strongest effects on decreasing poverty rates, so there does seem to be an important role for the old sectors in a local economy. This conclusion is situated in a growing body of critical analyses on national and international economic restructuring.

Returning to some of the issues raised in the introduction, the results of this study cast some significant doubt on the new economy of the United States. I would draw the reader's attention to two robust pieces of evidence: the spatial clustering of economic change is a crucial aspect of modeling the 1990's restructuring and while the service sector appears to alleviate poverty more than extractive industries, its effect is consistently smaller than old economy sectors such as manufacturing and construction. Many authors have noted that the economic transition has not created an equitable distribution of wealth within society or a pathway to long-term financial security for a large portion of the population. Wright and Dwyer (2003), as mentioned above, came to this basic conclusion while comparing the 1960s and 1990s. In addition, Barry Bluestone and Bennett Harrison have contributed multiple works, which fundamentally question the sustainability of American restructuring as it has occurred during the 70s, 80s, and 90s (Bluestone & Harrison 1982; Harrison & Bluestone 1988; Bluestone & Harrison 2000). My addition to this argument is to uncover some of the underlying problems with economic restructuring in the 1990s. The decade is often seen as an extended economic

boom, and with the 1996 welfare reforms, a triumphant conclusion to the war on poverty seemed just around the corner. The conclusions of this study highlight the fact that the quickly growing service and financial sectors may have only applied a thin veneer of prosperity on top of an economy that is quickly becoming bifurcated. As the economy continues to redistribute wages out of the sectors that lower poverty and into the sectors that have smaller ameliorating effects, there may be little hope of sustaining the widespread prosperity of the 1990s.

The spatial analyses show that the geographical context is very important for understanding the changing socio-economic system. Areas around Atlanta, San Antonio, and Phoenix are just a few of the places that are suburbanizing faster than the changing distribution of wages. This is a direct contradiction of neo-classical economic theory because migration flows are supposed to help equalize capital flows; however, the effectiveness of the spatial error model indicates that there is a substantial amount of spatial heterogeneity at work within the migration decisions. Since the spatial model includes the wages of each sector, the spatial heterogeneity has to arise from other, unmeasured, variables. These variables may include housing stock, neighborhood amenities, school district considerations, and many other criteria for choosing where to live. Much like I argued that economic restructuring was unsustainable because it moved wages out of poverty-lowering sectors, I would also argue that the net migration pattern of the 1990s is unsustainable because it moves people away from the counties that are predicted to grow based on wage distributions. Congestion costs will continue to rise as migration flows into suburbs which are not the places where wages are earned (Hanson 2000).

The conclusions of this study are very troubling because they call into question the type of socio-economic changes that occurred during the 1990s. Economic restructuring may lead to a bifurcated labor force and ultimately to an increase in poverty. Suburbanization patterns may render it difficult for urban areas to promote economic growth. Even during one of the most prosperous decades in the last century, there are signs that the socio-economic system is fundamentally changing in a negative direction.

WORKS CITED

- Anselin, Luc, Ibnu Syabri & Kho Youngihn (2006). GeoDa: An introduction to spatial data analysis. *Geographical analysis*, 38, 5-22.
- Antonelli, Cristiano (2000). Restructuring and innovation in long-term regional change, in: Clark, G.L., Feldman, M.P., & Gertler, M.S. (eds.) *The Oxford handbook of economic geography*, pp. 395-412. Oxford: Oxford University press.
- Azariadis, Costas & John Stachurski (2005). Poverty traps, in: Aghion, P. & Durlauf, S.N., *Handbook of economic growth*, pp. 295-384. Amsterdam: Elsevier.
- Barro, Robert J. (1991). Economic growth in a cross section of countries. *Quarterly Journal of Economics*, 106, 407-43.
- Bluestone, Barry & Bennett Harrison (1982). *The Deindustrialization of America: Plant closings, community abandonment, and the dismantling of basic industries*. New York: Basic Books.
- Bluestone, Barry & Bennett Harrison (2000). *Growing Prosperity: The battle for growth with equity in the twenty-first century*. Boston: Houghton Mifflin.
- Borts, George H. & Jerome L. Stein (1964). *Economic growth in a free market*. New York: Columbia University Press.
- Bourdieu, Pierre (1981). The interest of the sociologist, in: Adamson, M. (trans.) *In Other Words: Essays towards a reflexive sociology*, pp. 87-93. Cambridge: Polity Press.
- Carlino, Gerald & Leonard Mills (1996). Testing neoclassical convergence in regional incomes and earnings. *Regional Science and Urban Economics*, 26, 565-590.
- De Jong, Gordon F., Deborah Roempke Graefe, & Tanja St. Pierre (2005). Welfare reform and interstate migration of poor families. *Demography*, 42, 469-496.
- Feser, Edward & Stuart Sweeney (2003). Out-migration, depopulation, and the geography of U.S. economic distress. *International Regional Science Review*, 26, 38-67.
- Fitchen, Janet M. (1995). Spatial redistribution of poverty through migration of poor people to depressed rural communities. *Rural Sociology*, 60, 181-201.
- Friedman, Samantha & Daniel T. Lichter (1998). Spatial Inequality and poverty among American children. *Population Research and Policy Review* 17, 91-109.

- Getis, Arthur (1995). Spatial filtering in a regression framework: Examples using data on urban crime, regional inequality, and government expenditures, in: Anselin, L. & Florax, R. (eds.) *New Directions in Spatial Econometrics*, pp. 172-188.
- Giddens, Anthony (1984). The Constitution of Society: Outline of a Theory of Structuration, in: Cassell, P. (ed. 1993) *The Giddens Reader*, pp. 88-100. Stanford, CA: Stanford University Press.
- Gouldner, Alvin W. (1970). *The Coming Crisis of Western Sociology*. New York: Basic Books, Inc.
- Hanson, Gordon H. (2000). Firms, workers, and the geographic concentration of economic activity, in: Clark, G.L., Feldman, M.P., & Gertler, M.S. (eds.) *The Oxford handbook of economic geography*, pp. 477-496. Oxford: Oxford University press.
- Hammond, George W. (2004). Metropolitan/non-metropolitan divergence: A spatial Markov chain approach. *Papers in Regional Science*, 83 543-563.
- Harrison, Bennett & Barry Bluestone (1988). *The Great U-turn: Corporate restructuring and the polarizing of America*. New York: Basic Books.
- Henderson, J. Vernon (2005). Urbanization and growth, in: Aghion, P. & Durlauf, S.N., *Handbook of economic growth*, pp. 1543-1591. Amsterdam: Elsevier.
- Hornstein, Andreas, Per Krusell & Giovanni L. Violante (2005). The effects of technical change on labor market inequalities, in: Aghion, P. & Durlauf, S.N., *Handbook of economic growth*, pp. 1275-1370. Amsterdam: Elsevier.
- Jacobs, Jane (1961). *The Death and Life of Great American Cities*. New York: Random House.
- Jöreskog, Karl & Dag Sörbom (1996). *LISREL 8: User's Reference Guide*. Chicago: Scientific Software International, Inc.
- Marx, Karl (1852). The Eighteenth Brumaire of Louis Napoleon, in: Tucker, R. (ed., 1978) *The Marx-Engels Reader*, pp. 594-617. New York: W.W. Norton and Company.
- Massey, Douglas S., Joaquin Arango, Graeme Hugo, Ali Kouaouci, Adela Pellegrino, J. Edward Taylor (1993). Theories of international migration: A review and appraisal. *Population and Development Review*, 19, 432-66.
- McCombie, J.S.L. (1988). A synoptic view of regional growth and unemployment: I - The neoclassical theory. *Urban Studies*, 25, 267-281.

- McGranahan, D. (1999). Natural amenities drive rural population change. Agriculture Economic Report Number 781, Economic Research Service, U.S. Department of Agriculture. Available at: <http://www.ers.usda.gov/publications/aer781/aer781.pdf>.
- Nord, Mark, A.E. Luloff, & Leif Jensen (1995). Migration and the spatial concentration of poverty. *Rural Sociology*, 60, 399-415.
- Porter, Michael E. (2003). The economic performance of regions. *Regional Studies* 37, 549-578.
- Rey, Sergio J. & Marlon G. Boarnet (2004). A taxonomy of spatial econometric models for simultaneous equations systems, in: Anselin, L., Florax R., & Rey, S.J. (eds.) *Advances in Spatial Econometrics: Methodology, tools and applications*, pp. 99-120.
- Rey, Sergio J. & Brett D. Montouri (1999). U.S. Regional income convergence: A spatial econometric perspective. *Regional Studies*, 33, 143-156.
- Sassen, Saskia (2006). *Cities in a World Economy*. Thousand Oaks, CA: Pine Forge Press.
- Voss, Paul R., David D. Long, Roger B. Hammer, & Samantha Friedman (2006). County child poverty rates in the U.S.: A spatial regression approach. *Population Research and Policy Review*.
- Wheeler, Christopher H. (2001). A note on the spatial correlation structure of county-level growth in the U.S. *Journal of Regional Science*, 41, 433-449.
- Wooldridge, Jeffrey M. (2003). *Introductory Econometrics: A modern approach*. Mason, Ohio: South-Western.
- Wright, Erik Olin & Rachel E. Dwyer (2003). The patterns of job expansions in the USA: A comparison of the 1960s and 1990s. *Socio-Economic Review*, 1, 289-325.

TABLES AND FIGURES

Table 1. Economic sectors and sub-sectors.

Sector Variables	SIC Codes	NAICS Codes	Sub-Sector Variables	SIC Codes	NAICS Codes
agriculture production					
agriculture services, forestry, and fishing	07--	11----			
	10--	21----			
mining			metallic mining	1000 1200 1400	212000 213000
			oil and petroleum mining	1300	211000
construction	15--	23----			
	20--	31----		2000 2100 2200 2300 2600 2700 2800 2900 3000 3100	311000 312000 313000 314000 315000 316000 322000 323000 324000 325000 326000
manufacturing			nondurable goods manufacturing		
				2400 2500 3200 3300 3400 3500	321000 327000 331000 332000 333000 337000
			durable goods manufacturing		
				3600 3700 3800	334000 335000 336000
			high tech manufacturing		
				3900	339000
			miscellaneous manufacturing		
	40--	48---- 22----		4100 4200 4300 4400 4500 4600 4700	481000 482000 483000 484000 485000 486000 487000
transportation, communication & utilities			transportation		488000 491000 492000 493000
			communications	4800	513000
			utilities	4900	22----
wholesale trade	50--	42----			
retail trade	52--	44----	merchandise	5300 5600 5900	443000 446000 448000
					451000 452000 453000

Table 1. Economic sectors and sub-sectors.

Sector Variables	SIC Codes	NAICS Codes	Sub-Sector Variables	SIC Codes	NAICS Codes
					454000
			house wares	5200	442000
				5700	444000
			automotive	5500	441000
					447000
			food	5400	445000
				5800	722000
	60--	52----		6000	521000
		53----	finance	6100	522000
		55----		6200	523000
finance, insurance, and real estate				6700	525000
			insurance	6300	524000
				6400	
			real estate	6500	531000
	70--	51----		7000	512000
		54----		7200	71----
		56----		7500	721000
		61----	private services	7600	811000
		62----		7800	812000
		71----		7900	814000
		72----		8400	
		81----		8800	
				7300	511000
				8600	514000
				8700	532000
			business services		533000
					54----
					56----
					813000
				8000	62----
				8100	61----
			professional services	8200	
				8300	
				8900	
public administration	91--	92----			
unclassified	99--	99----			

Table 2. Model coefficients and summaries.

Variable	Model 1 (OLS)		Model 2 (2SLS)		Model 3 (Spatial Error Model)		
	B (Std. Error)	Net Migration Rates	Change in Poverty Rates	Net Migration Rates	Change in Poverty Rates	Net Migration Rates	Change in Poverty Rates
Constant		-.037 (.007)	.011 (.005)	-.012 (.009)	.009 (.006)	.049 (.010)	.010 (.006)
Poverty (c_povty)		-.194 (.069)	---	.501 [†] (.181)	---	.902 [†] (.212)	---
Migration (e0netmig)		---	-.007 (.004)	---	.091 [‡] (.014)	---	.076 [‡] (.016)
Amenities (a9amenty)		.020 (.001)	---	.019 (.001)	---	.013 (.001)	---
Population density (l9densty)		.013 (.004)	---	.008* (.004)	---	-.024 (.004)	---
% Female headed households (d9female)		---	-.107 (.018)	---	-.034 (.022)	---	-.020 (.020)
% w/ High school education or less (d9educ)		---	-.094 (.009)	---	-.103 (.009)	---	-.109 (.010)
% w/ Associate's degree or more (e9educ)		---	.052 (.013)	---	.027 (.015)	---	.023 (.015)
Economic growth (bPtot)		.003 (.001)	-.001 (.000)	.003 (.001)	-.001 (.000)	.002 (.001)	-.001 (.000)
Agricultural sales (vRfarm)		.015 (.005)	.002 (.001)	.012 (.005)	.001 (.001)	.012 (.005)	.001 (.001)
Ag services, fishing, forestry (vRag)		-.028 (.036)	.001 (.009)	-.007 (.036)	-.003 (.010)	.001 (.034)	-.012 (.009)
Mining (vRmine)		-.123 (.018)	.011 (.004)	-.127 (.018)	.021 (.005)	-.074 (.017)	.016 (.005)
Construction (vRconstn)		.285 (.019)	-.025 (.005)	.295 (.020)	-.052 (.007)	.230 (.017)	-.041 (.006)
Manufacturing (vRmanu)		.039 (.007)	-.005 (.002)	.045 (.017)	-.007 (.002)	.036 (.006)	-.007 (.002)
Transportation, communication, utilities (vRtrans)		.039 (.017)	-.004 (.004)	.043 (.017)	-.006 (.005)	.031 (.015)	-.001 (.004)
Wholesale trade (vRwtrade)		.138 (.024)	.002 (.006)	.138 (.024)	-.009 (.007)	.105 (.021)	-.010 (.006)
Retail trade (vRrtrade)		.168 (.020)	-.016 (.005)	.183 (.020)	-.030 (.006)	.142 (.018)	-.020 (.005)
Finance, insurance, real estate (vRfinanc)		-.024 (.022)	-.003 (.006)	-.025 (.023)	-.002 (.006)	.013 (.020)	-.003 (.005)
Services (vRservic)		.019 (.010)	-.001 (.002)	.023 (.010)	-.007 (.003)	.018 (.009)	-.005 (.002)
Unclassified (vRunclas)		.019 (.009)	.013 (.002)	.009 (.010)	.010 (.002)	.003 (.009)	.007 (.002)
Lambda		---	---	---	---	.561 (.019)	.445 (.022)
R ²		.276	.204	.270	.188	.428	.335
S.E. of Estimate [#]		.114	.028	.116	.031	.101	.028
Moran's I of residuals (p)		.256 ($<.001$)	.264 ($<.001$)	.255 ($<.001$)	.376 ($<.001$)	-.039 ($<.01$)	-.035 ($<.01$)

[#] S.E. of estimate can be compared to S.D. of the dependent variables, .134 for net migration and .032 for poverty rates;

* p = .061;

[†] Reduced form poverty variable was estimated using % Female headed households, % w/ High School education or less, and % w/ Associate's degree or more as instrumental variables;

[‡] Reduced form net migration variable was estimated using Amenities and Population density as instrumental variables.

Table 3. Selected examples of the spatial error model results.

	Santa Clara, CA (06085)	Rabun ^a , GA (13241)	Kimball ^b , NE (31105)	Sierra ^c , NM (35051)	Cuyahoga (Cleveland), OH (39035)	Allegheny (Pittsburgh), PA (42003)
Net Migration Rates						
Predicted	- 6.96 %	+ 32.10	+ 5.83	+ 75.90	- 10.31	- 7.51
Observed	<u>- 1.59</u>	<u>+ 26.79</u>	<u>- 0.12</u>	<u>+ 46.84</u>	<u>- 6.25</u>	<u>- 4.78</u>
Residual*	- 5.37	5.31	5.95	29.06	- 4.06	- 2.73
Change in Poverty Rates						
Predicted	- 0.44 pts.	- 1.91	+ 3.07	+ 5.36	+ 0.45	+ 0.04
Observed	<u>+ 0.02</u>	<u>- 2.52</u>	<u>- 0.41</u>	<u>+ 1.29</u>	<u>- 0.63</u>	<u>- 0.36</u>
Residual*	- 0.46	0.61	3.48	4.07	1.08	0.40

* Residual = Predicted – Observed

^a Setting for the movie "Deliverance".^b The author's hometown.^c Future sight of Spaceport America.

Figure 1. Occurance of the phrase “new economy” in newspaper headlines, 1990-2006.

Figure 2. Conceptual diagram representing hypotheses.

Figure 3. Structural model depicted as a path diagram.

Figure 4. Model residuals for net migration rates.

Figure 5. Model residuals for change in poverty rates.